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AUTHOR Xu, Gang; And Others
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ABSTRACT

This paper reports on a study that asked six groups (totalling 175 third-year medical students), before taking their surgery clerkship, to make predictions about their experiences in the clerkship. For male students, those in the high-expectation group had records of consistently higher mean academic performance in their first 2 years of medical school than did those in the low-expectation group. The high-expectation group also had a higher score than the low-expectation group in the written examination at the end of the clerkship. For female students, the prediction of success in the clerkship was neither related to their previous academic performance, nor to the clerkship written examination score. Findings are discussed in terms of theory of aspiration and gender differences in views of surgery clerkship. Contains seven references. (Author)

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Preclinical Academic Performance and Expectation of Clerkship Experiences

Gang Xu, Ph.D.
J. Jon Veloski, M.S.
Philip J. Wolfson, M.D.

Center for Research in
Medical Education and Health Care
1025 Walnut Street, Room 119
Jefferson Medical College
Philadelphia, PA 19107

This study was presented in part at the annual meeting of the American Educational Resarch Association, San Francisco, April, 1992.

Dr. Xu is research associate at the Center for Research in Medical Education and Health Care; Mr. Veloski is director, the Medical Education Division at the Center, and Dr. Wolfson is associate professor in the Department of Surgery; all at Jefferson Medical College of Thomas Jefferson University, Philadelphia, Pennsylvania.

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Abstract

Six groups totalling 175 third-year students were asked before taking their surgery clerkship to make predictions about their experiences in the clerkship. For male students, those in the high-expectation group had records of consistently higher mean academic performance in their first two years of medical school as compared to those in the low-expectation group. The high-expectation group also had a higher score than the low-expectation group in the written examination at the end of the clerkship. For female students, the prediction of success in the clerkship was neither related to their previous academic performance, nor to the clerkship written examination score. The findings are discussed in terms of theory of aspiration and gender difference in view of surgery clerkship.

Preclinical Academic Performance and Expectation of Clerkship Experiences

Purpose

Individuals' expectations of their future success may depend heavily upon their previous success. This notion, termed "level of aspiration", has been well documented in the literature of experimental psychology.[1] Few studies, however, have addressed this issue of expectations in medical education.[2] The purpose of the present study was to explore the relationship between medical students' expectations of clerkship experience and their previous academic performance. According to the theory of "level of aspiration," individual's aspiration of success is positively related to their previous sucesss. Therefore, we expected that for the medical students who had lower academic performance in their basic science courses would have a lower level of aspiration in clinical clerkship.

Method

Six blocks of totalling 175 third-year students participated in this study. All students took one of the six-week required surgical rotations in the university or one of eight affiliated hospitals during the 1990-91 academic year. A questionnaire administered on the first day of the clerkship covered 19 activities that junior students frequently reported to encounter in their clerkship such as experience with attending physicians and residents; and in rounds, lectures, conferences, and operating room, etc. These items have been previously reported to be valid in assessing clerkship programs.[3] In the questionnaire, all students were asked to indicate their expectations in each of the areas on a 7-point Likert-type scale with a higher number indicating higher expectations. Students were also asked to give the last

four digits of their social security number. The students were told that no individual data were be released at any time and only statistical summaries would be reported.

Students' personal information (gender and academic performance) were retrieved from the school's data base of medical students. Measures of academic performance included freshman grade point average (GPA), sophomore GPA, and the Introduction to Clinical Medicine grade (ICM). Students' freshman and sophomore GPAs were calculated using grades earned in major freshman and sophomore classes. Students took the Introduction to Clinical Medicine course in their second year to learn the clinical skills needed for clerkships in the following year. Also included were students' written examination scores given at the end of the surgery clerkship. The programs of SAS[4] were used in the analysis.

Results

Out of the total 175 students, 152 students (87%) returned usable questionnaires. Forty-one respondents (27%) were females and 111 (73%) were males. The gender proportion of those respondents closely matched that of the total student group (28% vs. 72%, for female and male, respectively). The students' overall initial expectation mean was derived from the 19 items combined (mean = 5.22), which indicated, on a 7-point scale, that students in general had a positive attitude towards the coming clerkship. Analysis of variance of this expectation mean revealed that there was no significant differences among the hospitals and the further analysis was conducted with hospitals combined.

The students were then divided into two groups based on their pre-clerkship expectation median: those above the median (high-expectation) and those equal to or below the median (low-expectation) and compared the two groups in their academic performance. Overall the high-expectation group had significantly higher score than the low-expectation

group in freshman GPAs (84.4 vs. 82.3; P < .01), in sophomore GPA (81.9 vs. 80.4; P < .08), and in ICM scores (81.8 vs. 80.3; P < .05). Further analysis by gender revealed that on all three measures, male students in the high-expectation group had significantly higher mean scores than those in the low-expectation group (See Table 1), however, for females, there was no difference between the high- and low-expectation groups in any one of the three measures.

The same pattern of difference between males and females was seen in the clinical written examination scores: For male students, those who had higher expectations at the beginning also performed better than those in the low-expectation group at the end of the clerkship (86.4 vs. 83.0; P < .01). However there was no group difference for female students in their examination score (83.5 vs. 84.4; P < .70).

Discussion and Conclusion

This study was to investigate the students' expectations of their clerkship experience as related to their previous academic performance. Our hypothesis that low expectation was related to previous low academic credentials was confirmed for male students: Those who had low expectations at the beginning of the clerkship were also those who had a lower record of academic performance in the first two years of medical school. This is consistent with the theory of level of aspiration,[1] which states that an individual's aspiration level at any given time is higher if the previous performance was successful and lower if the previous performance was not successful. For the female students, however, the lack of difference between the high- and low-expectation groups in their academic records seemed to suggest that those who had better academic performance are cautious in making their projections of success. Some studies have shown that females perceived surgery as a male-

oriented specialty,[5] and female students felt significantly less competent than males in surgery clerkship.[6] National statistics indicates that females are more interested in such specialties as pediatrics and obstetrics/gynecology.[7] Therefore, this gender-related findings seem to confirm the stereo-type of surgery as a male-oriented specialty. Those female students were thus less likely to rely upon their previous success in basic science courses to project their success in the clinical surgery clerkship. It would be interesting to conduct a similar study in another department such as pediatrics or obstetrics/gynecology.

An interesting but important finding was those males who had low-expectation at the beginning also performed worse than their counterparts at the end of the clerkship. This raised the question as to whether those students lacked motivation or confidence in their performance. For teaching coordinators and program directors, the findings here indicated that a baseline expectation is one of the important factors that should be given more attention.

In summary, this study explored the students' level of expectation before they actually took the surgery clerkship. Male students' level of expectation was related to their previous academic performance and to their performance in the clerkship. However, this association between the level of expectation and previous academic performance was not found for female students. Future study may use data from other department where females have a strong orientation to further clarify this gender difference.

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Table 1

Mean (Standard Deviation) of
Male and Female Students' Academic Performance as
Classified in High and Low Expectation Groups

	Male			Female		
	High (n=56)	Low (n=55)	P	High (n=20)	Low (n=21)	P
Freshman GPA	84.9 (4.9)	82.1 (5.8)	.01	83.1 (4.3)	83.0 (4.6)	.97
Sophomore GPA	82.5 (5.1)	80.0 (5.6)	.01	80.1 (4.8)	81.6 (5.2)	.34
Introduction to Clinical Medicine	82.3 (4.5)	80.0 (4.7)	.01	80.3 (4.8)	81.3 (3.9)	.47
Written Examination	86.4 (6.1)	83.0 (7.3)	.01	83.5 (9.0)	84.4 (6.3)	.70